GESTALT
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Gestalt in Video Games
From the theory of perception to the glow of a screen

by Roberto "the Bak" Cananzi
www.ilbak.it

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Over time, video games have managed to gain importance and attention as a communicative and artistic medium. It's an art form that encompasses many other arts, combined and brought to the forefront of the indispensable element: the player.
But to intrigue and captivate the player, every detail must be carefully crafted, starting from an appealing and functional aesthetics that must act as an "interpreter" between the game and the player throughout their experience.
Let's explore together some "key rules" that, from the past, reappear on our screens as guidelines for games of the present and future.

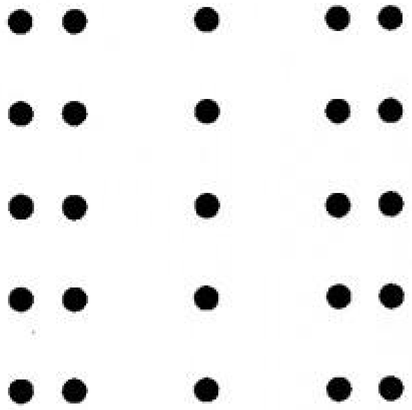
The theory of Gestalt is a theory of perception that studies how the human brain organizes sensory information through meaningful patterns to achieve not a sum of elements but an overall synthesis of reality (a form, "Gestalt" in German).
It has its roots in German psychology, more precisely in Berlin, by Dr. Max Wertheimer, who began to define Gestalt with an initial article in 1912 and completed his research in 1921.
Within the field of perception, Wertheimer began to analyze the "phi phenomenon," the movement induced by a series of rapidly succeeding visual stimuli, and then structured a "visual grammar" according to some rules, called "Gestalt principles of grouping."

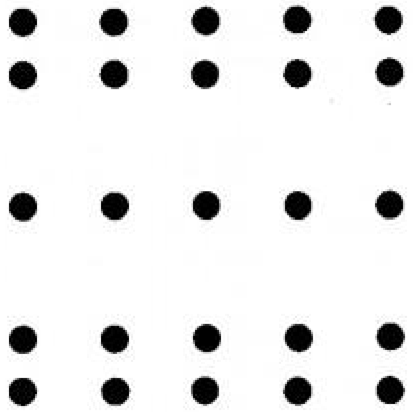
The rules of Gestalt

To better understand what we are talking about, let's look at the rules of Gestalt with their accompanying illustrative drawings.

1. Proximity

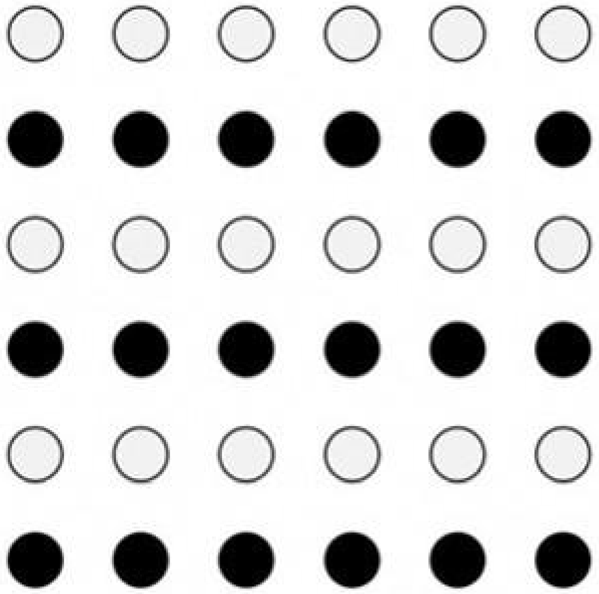
The brain groups objects close to each other as part of a group.





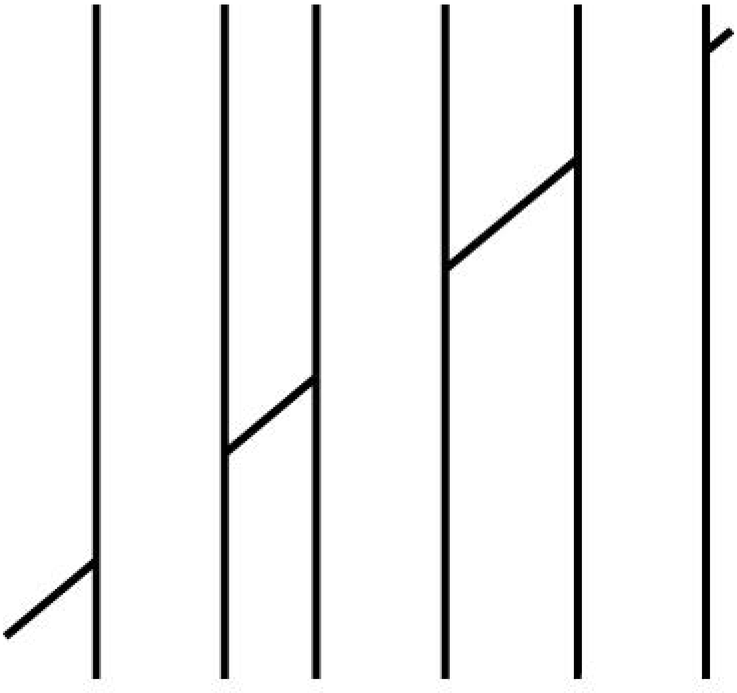
2. Similarity

Tendency to group visually similar elements.



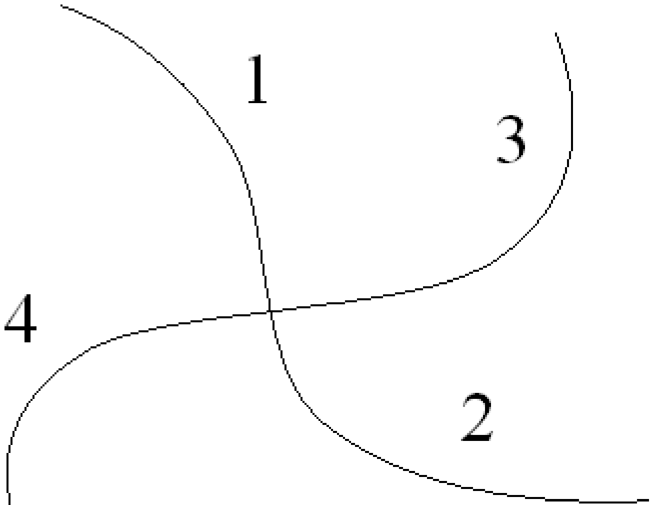
3. Common Fate

Elements are grouped with others that have a consistent movement in the same direction and different from others.



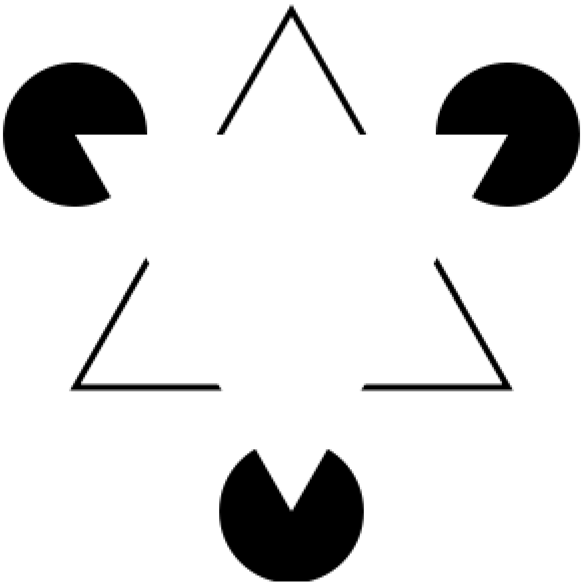
4. Continuity of Direction

All elements are perceived as belonging to a coherent and continuous whole.



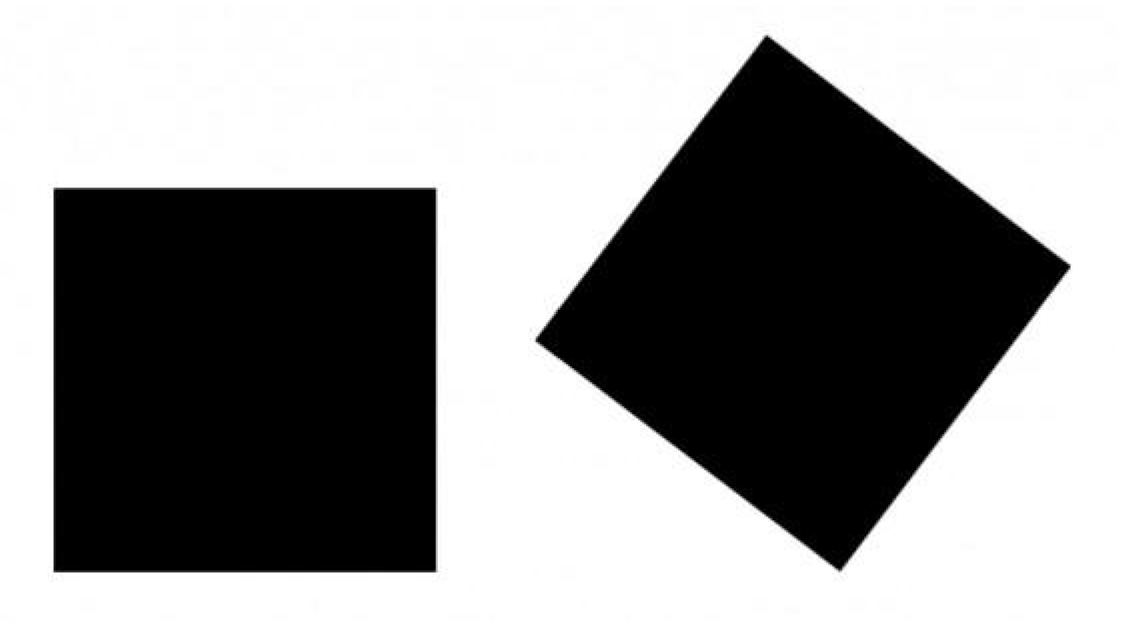
5. Closure

Some elements not delineated by closure can be interpreted as a single figure.



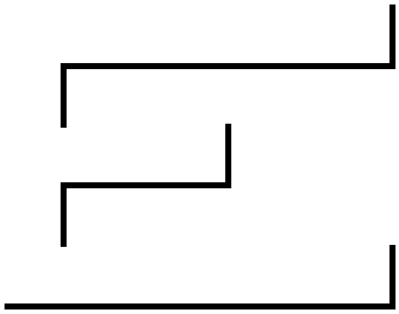
6. Pregnancy

We tend to organize the image according to simplicity, symmetry, and order. The simpler and more stable an element is, the more "impactful" it appears.



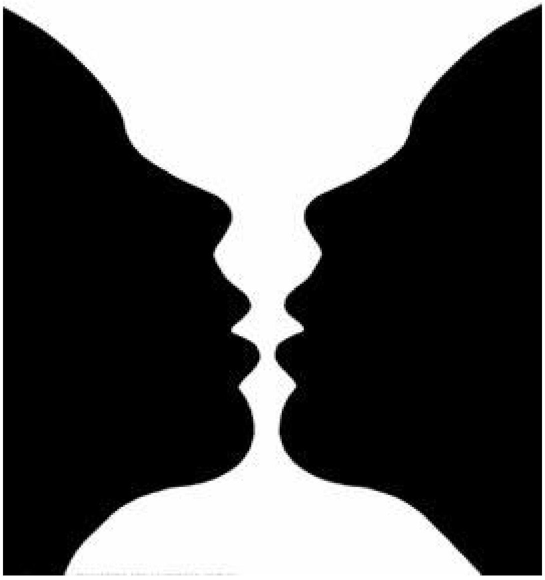
7. Past Experience

The brain tends to create shapes and concepts already seen and learned where there are even just simple separate lines.



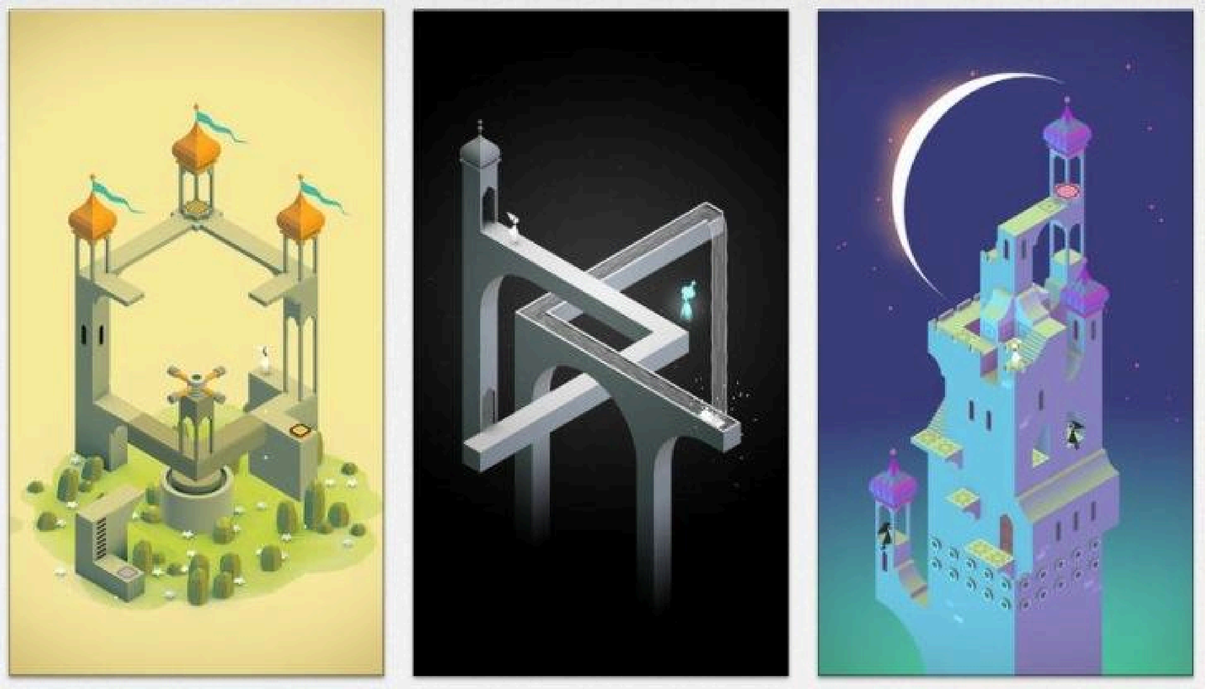
8. Figure-Ground

All parts of an area can be interpreted as both object and background.

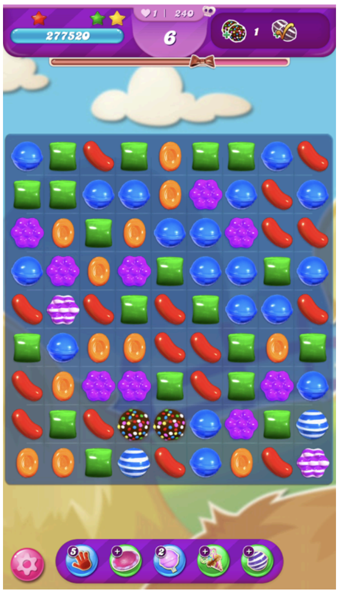


Gestalt in Video Games

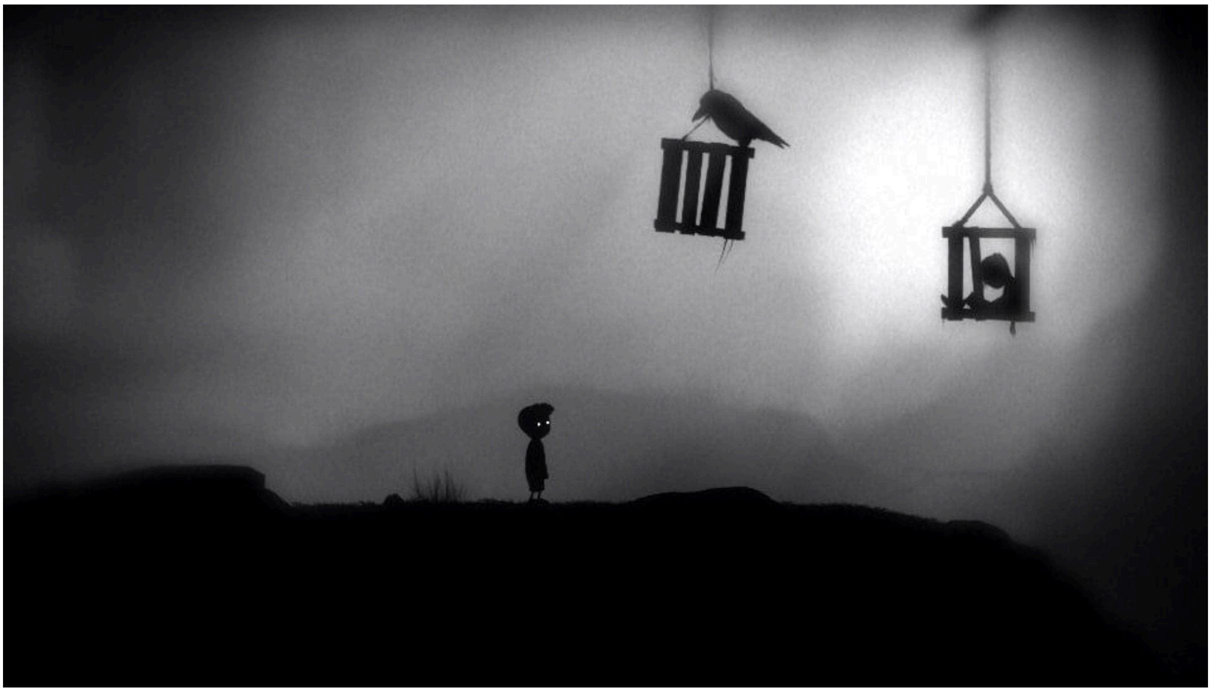
The Gestalt theory has had a significant impact (directly or indirectly) on the graphics of video games. This is due to the need to provide a visually pleasing yet functional and immersive communication to a large and diverse audience.
Below are listed some video games that utilize the Gestalt theory in their graphics:



Monument Valley: It's a great example of how the figure-ground rule can be used in video game graphics. The game features a world where geometric structures are arranged to create optical illusions. The result is a surprising and aesthetically pleasing gaming experience.
The game also features some levels structured like Penrose's "impossible figures," those figures that we can instinctively recognize in graphics but do not have an exact translation in reality. This particular optical effect is also useful in making us reflect on how an image can be processed in a "instinctive" phase, where our mind constructs it as plausible, and in a "reasoned" phase where we realize that the figure is not physically representable.

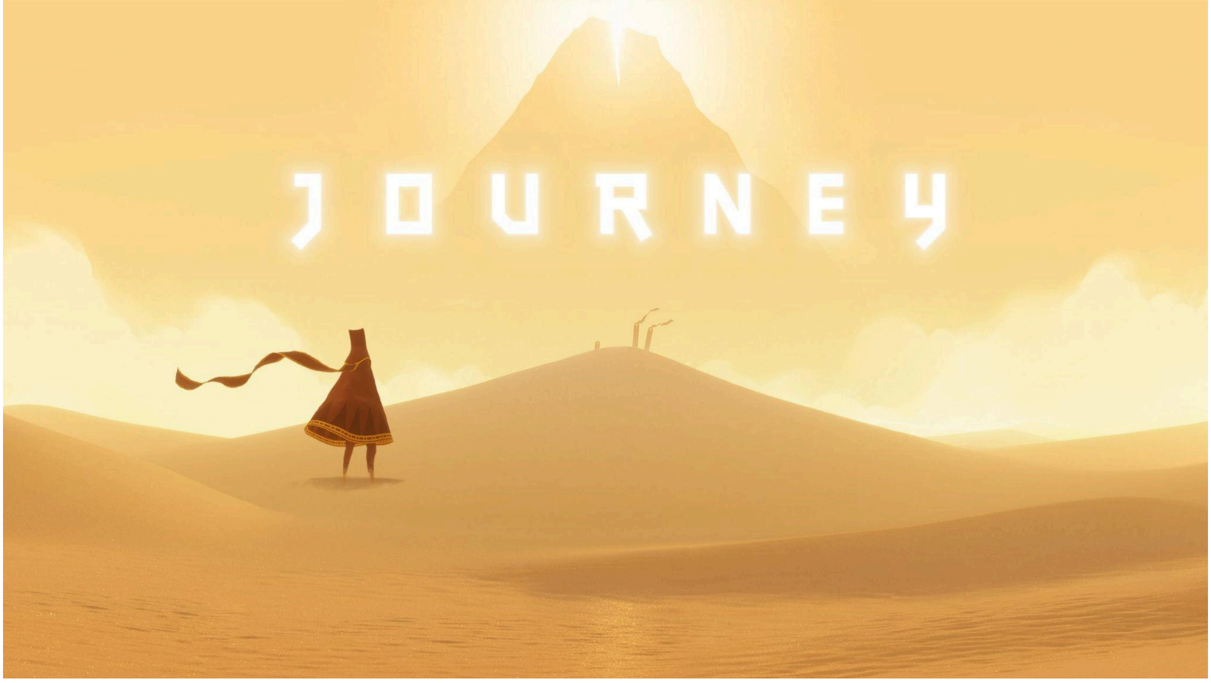


Candy Crush: uses the rule of similarity to create a fast-paced gaming experience that challenges the player's visual ability to distinguish similar shapes. It's a puzzle game where the player must group, through simple movements, elements characterized by different shapes and colors.



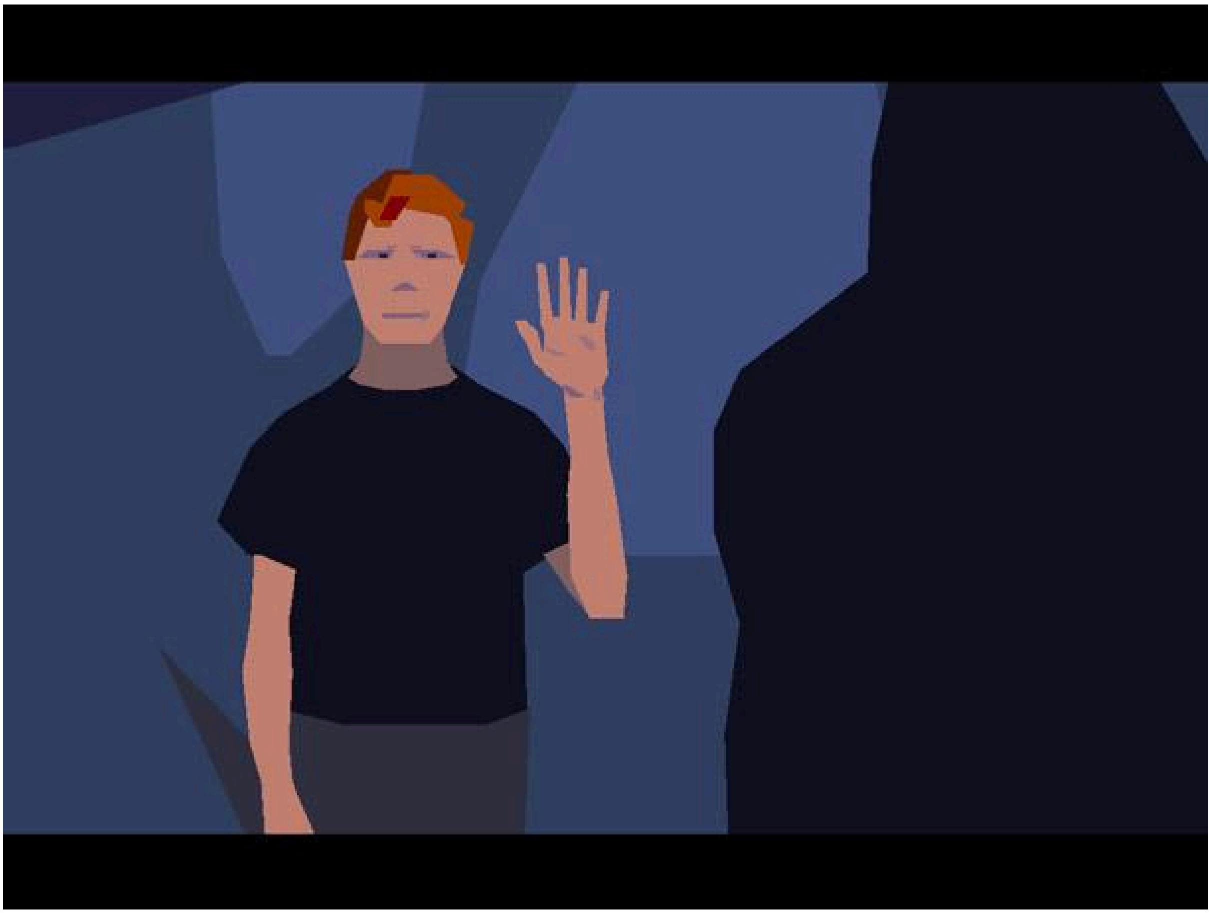
Limbo: It uses black and white graphics to create a strong separation between figure and background. The game features a dark and mysterious world where the player must overcome visual obstacles to reach the goal. The game's minimalist graphics are aesthetically pleasing and functional from a gameplay perspective.

Here, the figure-background interplay not only enhances a dark stylistic theme but also the empathy the player builds with the solitary figure of the protagonist.



Journey: It uses the rule of continuity to create a landscape of hills and valleys. The aesthetic simplicity provides a smooth and immersive gaming experience. The game is an adventure where the player explores a vast desert world. The game's graphics are arranged to create a continuous flow of environments and situations.

We also see a notable example of "chromatic perspective" where closer elements have greater contrast compared to distant elements, creating a sort of perspective "fog effect" that conveys the idea of depth and vastness of the scenery.

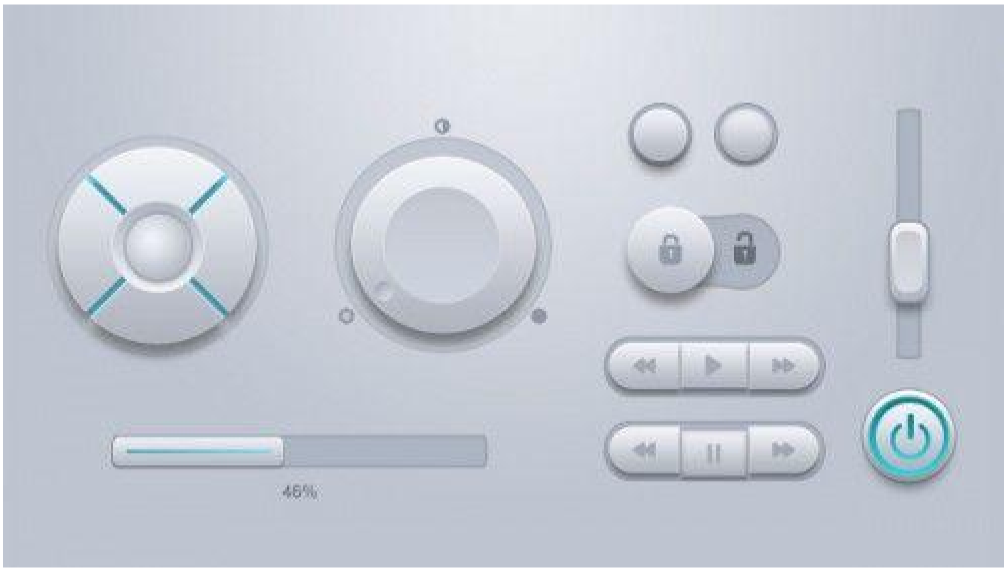


Another World: By exploiting vector graphics in a unique way, this game creates recognizable figures using few geometric shapes that we identify through the rule of past memory and easily recognize in context. For example, a human figure becomes a handful of polygons where we easily recognize facial features or expressions.

This technique was used alongside "rotoscoping": cinematic scenes were recorded with a camera and figures were extracted from frames, composed with vector polygons. This way, the graphics were lightweight and the animations incredibly smooth (we're talking about a game from 1992 designed for the Commodore Amiga platform).

In addition to the examples mentioned, there are also other theories of visual perception that have had an impact on video game graphics. For example, the theory of light refraction processing has led to the development of advanced rendering techniques for creating photorealistic images.

Gestalt in the User Interface



We can also find Gestalt rules in the field of developing functional and intuitive user interfaces (UI). For example, leveraging the rules of chiaroscuro and shadows through cast shadows (i.e., shadows internal to the element) and cast shadows that convey a sense of volume to the graphics.
In a world where interactions occur through flat and thin touch screens, the advantage of giving a more elegant and familiar shape to the graphical interface is not a trivial detail. Even the way elements are grouped and arranged closely resembles the Gestalt principles of "proximity" and "continuity."

In conclusion

The Gestalt theory remains one of the most important theories of visual perception, and we find it perfectly reflected in video game graphics as well. The rules of Gestalt provide guidance for creating functional, pleasing, and easy-to-understand images, making video games more immersive and engaging for players. This is just one of the many communicative factors that modern video games can leverage, but it is certainly the most immediate and impactful on the vast audience of gamers of all ages who take turns in front of screens around the world.